From glowbugs@sco.theporch.com Tue Mar 18 21:08:31 1997
Return-Path: <glowbugs@sco.theporch.com>
Received: from sco.theporch.com (sco.theporch.com [207.234.31.38])
          by uro.theporch.com (8.8.5/AUX-3.1.1)
          with ESMTP id VAA01680 for <shimshon@uro.theporch.com>;
          Tue, 18 Mar 1997 21:08:26 -0600 (CST)
From: glowbugs@sco.theporch.com
Received: from sco.theporch.com (localhost [127.0.0.1])
          by sco.theporch.com (8.8.5/SCO-5.0.2) with SMTP
       id DAA10419; Wed, 19 Mar 1997 03:06:21 GMT
Date: Wed, 19 Mar 1997 03:06:21 GMT
Message-Id: <199703190306.DAA10419@sco.theporch.com>
Errors-To: ws4s@infoave.net
Reply-To: glowbugs@sco.theporch.com
Originator: glowbugs@sco.theporch.com
Sender: glowbugs@sco.theporch.com
Precedence: bulk
To: Multiple recipients of list <glowbugs@sco.theporch.com>
Subject: GLOWBUGS digest 479
X-Listprocessor-Version: 6.0 -- ListProcessor by Anastasios Kotsikonas
X-Comment: Please send list server requests to listproc@sco.theporch.com
Status: O

GLOWBUGS Digest 479

Topics covered in this issue include:

Date: Tue, 18 Mar 1997 02:55:00 GMT
From: ralph.hartwell@emachine.com (Ralph Hartwell)
To: glowbugs@theporch.com
Subject: Re: Admistrative, please
Message-ID: <97031721444610203@emachine.com>

R>> me that as of May 1, the glowbugs list will become a paid-subscription-only

R>Will the listowner provide me a listing of email addresses for the
R>members, and if something comes up down the road, maybe I can ask around
R>for some local input (with the consensus of the individual members)?

   Hmm.. Lemme' figure this out... It looks like if I charged $12 a person, and if I were to get 30 paying subscribers, then I could cover my phone costs and my ISP fees for the year.   That means I could run my other two mailing lists for free! <G>

  How many folks are on the GB list? It may be possible for me to run the list from here, at least for a few months, I just need to know what the total subscriber count is so I can see if I can handle the traffic without a bit problem. That should tide us over until we can locate a

better site.

   Ralph W5JGV

 ¸ QMPro 1.53 ¸ Ethernet - Device used to capture the Ether Bunny.

Date: Mon, 17 Mar 1997 23:05:22 +0000
From: "Brian Carling" <bry@mail1.mnsinc.com>
To: glowbugs@sco.theporch.com
Subject: Re: Glowbugs- It's Been Fun
Message-ID: <199703180403.XAA13588@news2.mnsinc.com>

On 18 Mar 97 at 1:25, macino spoke about Re: Glowbugs- It's Been Fun
and said:

> I had to laugh to myself yesterday. Some dork was wheeling a
> R390 around at a hamfest. He was bragging that 'internet
> people' would pay $1500 for that $500 investment he made.
> Are we 'internet people'?

We may be "Internet People" Jim, but we AIN'T THAT dumb!
****
*** 73 from Radio AF4K / G3XLQ in Gaithersburg, MD USA *
** E-mail to: bry@mnsinc.com   *
*** See the great ham radio resources at: *
** http://www.mnsinc.com/bry/   *
****

Date: Mon, 17 Mar 1997 23:05:22 +0000
From: "Brian Carling" <bry@mail1.mnsinc.com>
To: "Robert M. Bratcher Jr." <bratcher@worldnet.att.net>
Subject: Re: BA newsgroup
Message-ID: <199703180403.XAA13593@news2.mnsinc.com>

On 17 Mar 97 at 20:16, Robert M. Bratcher Jr. spoke about Re: BA
newsgroup and said:

> Wait a sec,
> Is that group a copy of the BA E-mail list?

No

> Or did someone create a BA newsgroup that I've been reading for the

> last several months?

Yes, if you are reading r.r.a.b - someone DID create that.
It is NOT connected to BOATANCHORS at all...

just some of the same folks on both!

73- Bry

****
*** 73 from Radio AF4K / G3XLQ in Gaithersburg, MD USA *
** E-mail to: bry@mnsinc.com   *
*** See the great ham radio resources at: *
** http://www.mnsinc.com/bry/   *
****

Date: Mon, 17 Mar 1997 23:12:14 +0000
From: "Brian Carling" <bry@mail1.mnsinc.com>
To: glowbugs@theporch.com
Subject: Re: Where would the money go?
Message-ID: <199703180410.XAA13983@news2.mnsinc.com>

On 18 Mar 97 at 2:23, Lawrence R. Ware spoke about Re: Where would
the money go? and said:

> At 01:43 03/18/1997 GMT, gekko95@ix.netcom.com wrote:
>
> >My question is where will this money go? Last I heard, Conard said
> >there were about 250 members of the group. That works out to be
> >$6000 per year ($24 per user, 250 users) to The Porch.
>
> I'll take a try at answering this... Conrad please feel free to
> correct me... :-)
>
> At $12 X 250 it's $3,000 not $6,000. Even if all 250 pay the
> full $20 next year it's only $5,000. (This leaves out the BA
> subscriptions, which also go to theporch.com, but this *is* the
> glowbugs list.)
>
> I've talked to Jack Hill a number of times and have *some* idea of
> his and Phil Porch's costs:
>
> 128K ISDN circuit to the ISP, about $120 per month, or $1,440 year.
> 128K ISDN ISP service, about $200 per month. (Only dial up lines are
> $20 guys,) high speed costs money...   or $2,400 year. ISDN
> Router, with support contract... $3,500 New dual
> Pentium Pro machine, "sco.theporch.com" $12,000. Disk space

> for archives, (growing every month) $50 or $600 year.
>   -------------
> $19,940
>
>
> These are only part of the costs that I'm aware of...
> The other list (BA) helps support this also, still it costs a lot of
> money.
>
> Give the gents a break, they are *not* getting rich.
> Jack and Phil don't draw a salery for this. If they did, you could
> add another $60,000 to $100,000 per year to costs. Good sys admins
> and good unix programmers are not cheap. I know, I hire them...
>
> Many *free* lists are really just free to you, someone pays the
> bill. Sometimes the goverment, sometimes the state, sometimes the
> university, sometimes even private industry... It all comes out of
> your pocket in taxes or higher prices anyway. Our company "web site"
> is free, unless you buy our products, then it's built into the
> product costs.
>
> Consider this and the BA lists as "toll roads." You want to
> ride, pay the man at the booth... The *free* roads are always
> available if you want to drive the long way around...

I think you have made some excellent points here.
However, I think that in most cases there are MULTIPLE uses of these
machines and the lists just run in the background on some business
or government enterprise's computers and ISDN lines.

I subscribe to numerous lists that are FREE. I have not encountered
any others that charge for list usage. I do not feel that any of them
are causing me to "drive the long way around." BA and GB are no
faster than the free ones.

My guess is that the mailmen don't have this luxury and that they are
doing this as a mini-business on the side rather than getting to do
it on a multi-function machine that is set up for other tasks.

I don't know this - just my guess. All the best - Bry

p.s. DO they REALLY hand-program all of the software that runs
BA and GB in UNIX all by themselves? If so, when do they ever
have time for a family or a real job???

Date: Mon, 17 Mar 1997 23:08:26 -0500

From: Steve Ellington <n4lq@iglou.com>
To: ralph.hartwell@emachine.com
Subject: Re: Admistrative, please
Message-ID: <332E153A.26E0@iglou.com>

Maybe we could start a glowbug traffic net on 80 meters. The NCS could charge $5 for each check-in to cover the cost of his rig. Why didn't Hiram Maxim think of that? Now maybe if Porch-Hill would lobby congress for us and send out a nice magazine then it would be worth the $$.

LQ

Date: Mon, 17 Mar 1997 23:39:54 -0500 (EST)
From: EricNess@aol.com
To: glowbugs@theporch.com
Subject: A Real Cool Amp
Message-ID: <970317233814_-935808945@emout17.mail.aol.com>

I recently picked up a couple boxes of late 60's /early 70's QSTs. The neat thing about QST's of this vintage is that that there are still some hollow state projects yet most of the parts are still available. Furthermore, parts of this vintage are still considered junk and not antique.

Anyway, there are a number of interesting crystal controlled transmitter projects in the stack of mags I acquired but, the article tht really caught my attention was in the October 1970 QST called The "Junker" Amplifier. The article describes a 500 Watt class grounded grid linear amp using mostly scrounged parts. The author tested amps with a single 813/803 or a pair of 811As. Although I have not seen too many 803's recently, 813's are still available surplus and 811's can be bought new.

The first thing that came to my mind was, "How cheap could one build a 500 Watt amp?" I'll bet it can be built for much less than $100. Who said that ham radio was an expensive hobby?

Needless to say, the surplus market has changed since the "junker" article was originally written but yet today, a scrounger amp can be had. To me perhaps the most difficult piece is the power transformer. The article suggests an 800 Volt color TV transformer from the local repair man but, there are not too many of those old classics remaining. Fortunately, other hams have harvested these precious hunks of iron for us. I found a massive 880 V TV transformer at the last swap meet for the scrap metal price of two bucks!

The next big ticket item seems to be the caps for the power supply. The "junker" uses a voltage doubler circuit which requires at least 6 450 Volt

caps. Fortunately, a switching power supply of the 115/230 Volt variety (commonly used in today's computer equipment) will have a 400 to 450 Volt cap on the input circuit. I was able to find 8 220 uF caps at 400 Volts in a batch of scrap material (read free) but caps like this do appear on the surplus market for less than a buck a piece (although some want more).

The Junker amp article tells how to wind the tank coil, another hard to find item. As for the caps for the pi network, we must rely on the swap meets and the part sharing tradition of ham radio. The high Voltage caps for the "tune" side and the multi gang receiver style caps for the "load" side of a pi network are still readily available on the surplus/swap scene for about $5 to $15 each.

Two important parts that are not so readily available are the the filament choke and the plate choke but, they don't seem too hard to build. The filament choke is simply a bifilar winding on a ferrite rod. The plate choke can be wound on a long cerramic standoff. Definitely not wallet breakers.

The final costly item is the enclosure but, wait a minute, a desk top computer box looks to be just the right size. I saw IBM PC enclosures (all metal construction) for $10 at a local surplus outlet. For myself, I was able to do a little dumpster diving and got a case for free (a a side benefit of living in silicon valley).

It looks like I have most all the parts I need except the most important fire bottle. I would really like an 813 for this amp. Does anyone have a spare 813 available for trade? I'm not looking for a NOS tube in a pretty box, a used one if fine as long as there is some fire remaining.

If there is anyone on the list who would like to join me in building a "Junker" I would be more that happy to share notes and trade parts. I probably have enough parts to build two or three junkers, except of course for the 813's.

73,

Eric, WD6DGX

Date: Mon, 17 Mar 1997 23:40:16 -0500 (EST)
From: EricNess@aol.com
To: glowbugs@theporch.com
Subject: Count me in
Message-ID: <970317233756_-2107276337@emout05.mail.aol.com>

All,

I have been an avid subscriber to the Glowbugs list for the past year. I tried the the Boatanchor list for awhile but there was too many mail messages inconsistent with my interests. Glowbugs on the other hand has connected me with a host of others with the same love of radio circuitry history and homebrew using vacuum tubes. I will follow the Glowbugs list where ever it ends up, even if it stays here and costs 24 bucks a year.

Lets face it, there's no such thing as a free lunch (TNSTAFL as my favorite author Robert Heinlen would say). Universtites are loosing their free internet access and are finding more and more of their computer bandwidth being consumed by non academic related activities. The writing is on the wall, the days of free computer time on the internet are going away. In the future we are going to have to pay our fair share.

I don't recall what QST cost now a days but it certainly is more than the 24 bucks proposed for Glowbugs. I don't know about the rest of you but, I find the daily posts from Glowbugs every bit as interesting, informative, entertaining as I do QST. Count me in!

73, Eric WD6DGX

Date: Mon, 17 Mar 1997 20:50:21 -0800 (PST)
From: Stan Skelton <sskelton@cln.etc.bc.ca>
To: EricNess@aol.com
Subject: Re: Count me in
Message-ID: <Pine.SUN.3.95.970317204548.389A-100000@cln>

I already pay for my internet access, plenty!   And it's There Aint No Such Thing As A Free Lunch (TANSTAAFL), check your Heinlein, "The Moon is a Harsh Mistress" book 3.

73's VE7SKT qrp-l #34), OHR Sprint 80, 38 Special

Date: Mon, 17 Mar 1997 23:51:09 -0600
From: bill@skeeter.frco.com (William Hawkins)
To: boatanchors@sco.theporch.com
Cc: glowbugs@sco.theporch.com
Subject: Season's Greetings
Message-ID: <9703180551.AA26622@skeeter.bvc.frco.com>

Happy Saint Patrick's Day!

It may not be a big deal to you, but this is the peak of cabin fever season in the Frozen North. Our last festival was Winter Carnival in January, and Mardi Gras seems to be a Southern holiday. It's a great time to get reacquainted with that wonderful Irish music and dancing. Makes you wonder how such happy people could produce the IRA and The Troubles in the north, but it's the way of the world. All nations have their talented people and their troublemakers. It's even true of those of us who gather here on theporch.

When I saw that glowbugs was going to be included in the $20 annual fee, and that it would be _in addition_ to $20 for boatanchors, I wondered if Jack was taking a negotiating position. Something like, if you all will quit sending useless bytes like big signatures and mindless quoting of all past replies, the price might come down. But then there's the stuff we have no personal control over, like the witless administrators (no, not all of 'em) of our mail systems who keep Jack's mail full of error messages. And there's all this talk about the phone companies charging for time, because the average call isn't three minutes anymore.

I asked about people interested in classic audio, and got about 20 replies. I thought about theporch, but it's out of the question, now. I hope we can settle on an annual charge for use of theporch, without it being per list. Glowbugs is different from boatanchors, and needs to stay separate.

Regards,
Bill Hawkins bill@skeeter.frco.com
"An apple a day keeps the lawyers away - if you can convince them that you're eating apples because you can't afford steak" Dr. Science

---

Date: Mon, 17 Mar 1997 22:26:37 -1000
From: "Peter L. Demmer" <ampruss@hits.net>
To: lrware@pipeline.com
Subject: Re: Where would the money go?
Message-ID: <332E51BD.2408@hits.net>

Lawerence;
Thanks for your right on the money IPB-LCP (item/parts breakdown list/cost posting). I noticed that one of the local, of the many detractors, uses one of those state/federal tax burden systems to spew his chintzy wrath to the porch. Im also glad that it was a KH2 call and not a KH6 that didn't have the decorum to show a little self respect and realise that if you can't afford the price of the goods or the service,

to politly say thanks (like some of the folks did) and quitly step away
from the table, thus leaving everybodys dignity in tact. I only hope
that the rest of the BA andf Glowbug folks were not missled into
thinking that all the island Hams are in any way, characteristic of such
ilk. Aloha nue ka ko for the BW. Peter, KH6CTQ

Date: Tue, 18 Mar 1997 05:57:45 +0000
From: "Lawrence R. Ware" <lrware@pipeline.com>
To: glowbugs@theporch.com
Subject: Re: Where would the money go?
Message-ID: <3.0.16.19970318055736.0aff82a0@pop.pipeline.com>

<sigh> and I just replied politely to this guy in private, then found
he posted to the list also...

At 03:05 03/18/1997 GMT, earwax? wrote:
>If these guys are such hotshot programmers why do they need a $12,000 box
>to run a couple of mail lists? I don't know why they couldn't hack a
>Linux box to do the job for them.
I believe boatanchor Bob Keys is considering the same. I've
met "rdkeys" I expect he could do it.

>If you're going to quote figures then why not add what they collect off
>the BA list?
I'm going to defer to Jack on this one, because he has the *exact*
correct numbers, mine were based on what he has told me, posted in
his messages to the bapolicy group, and what similar services cost me
where I work.
But as a round number add about $6,600 to the income column for BA
subscriptions...

>You ARE right about it being their lists and if they want to charge for
>it that's their business.
Truly the gist of the issue.

-Larry Ware
lrware@pipeline.com
Orlando, Florida

Date: Tue, 18 Mar 1997 06:37:42 -0500
From: John <johnmb@mindspring.com>

To: n4lq@iglou.com, glowbugs@theporch.com
Subject: Re: Admistrative, please
Message-ID: <199703181139.GAA26495@camel6.mindspring.com>

At 04:13 AM 3/18/97 GMT, you wrote:
>Maybe we could start a glowbug traffic net on 80 meters. The NCS could
>charge $5 for each check-in to cover the cost of his rig. Why didn't
>Hiram Maxim think of that?

Maybe he did! Have you checked your ARRL dues recently?

I get more out of these lists than Q-street...
Best 73
/John

Date: Tue, 18 Mar 1997 06:31:32 -0600 (CST)
From: Kevin Pease <hamradio@mm1001.theporch.com>
To: Dave <gekko95@ix.netcom.com>
Subject: Re: Where would the money go?
Message-ID: <Pine.LNX.3.95.970318062044.4067A-100000@mm1001.theporch.com>

If there are 250 members to the Glow BUG list and 10 posts per day that is 2500 pieces of mail that go out tie bit line. if the messages a 1k bytes thats 2500k or 2.5 mb of traffic out a limited line. The porch and hill can shut down both lists if that want to. Philip has no interest in ham radio at all. it is Jack who went to philip for space on the porch. THe pentium pro is because of the heavy load that listproc puts on philips macintosh. How many of you would host for free a list that would make your computer almost unuseable for anything else. Also remember that his computer has to run 24 hours a day and when it goes down everyone moans and complains about it and pings the list etc which puts an even greater load on things. Ift it were me I would drop the whole wineing (sp) bunch and doe something else. The traffic from the ba and GB lists has philips 128kbit line at about 90% capacity makeing it almost useless for philip himself who is maintaining the system for free.

you also need to remember that jack gets up to 500 messages per day from other peoples mail systems that are broken if it takes 1 minuite per message that would be 500 minuites or almost 5 hours just to keep this thing afloat. Jack doesn't even have the time to read the BA list that he is maintaining.

I have know idea how many mssages conrad gets.

So folks can either payup or shutup and go somewgere else. You can make a newsgroup and pay your provider for the information and not wory about this mailing list anymore. Philip and jack won't mind at all.

I bet not one of the titewads on this list would be half as generous as philip and jack and this list never would have existed at all.

Lets all grow up and drop this whole subject.

Kevin Pease
WB0JZG
Mount Juliet, TN.

Date: Tue, 18 Mar 1997 08:16:17 -0500 (EST)
From: Oxyura@aol.com
To: glowbugs@sco.theporch.com
Subject: Re: Where would the money go?
Message-ID: <970318081615_280554132@emout02.mail.aol.com>

In someone's pocket of course. Count me out.

Date: Tue, 18 Mar 1997 07:28:42 -0600
From: Conard Murray <ws4s@InfoAve.Net>
To: glowbugs@sco.theporch.com
Subject: HOLD IT!
Message-ID: <2.2.32.19970318132842.00b0d008@infoave.net>

Hey Guys!
I am not pleased by what I have seen transpire on this list in the last 12 hours. Quit all this yakking back and forth about bad attitudes and who is getting rich and whatnot. None of this is covered by the newsgroup charter no matter how hard you stretch it.
BTW, for the guys that want a GB net on 80M, there has been one running on that band for the last year.
Stay tuned for more information. If you have any ideas, send them to me, not to the list. If you have any normal GB traffic feel free to keep posting.
BTW, the only thing that will get you banned from the list is a personal attack on another person. I don't want to see that on this list at all. I don't care if it is true or not, just DON'T DO IT.

Thanks to all for their opinions. I still care what you think, just post the comments to me personally. When enough comments are collected, then I will abide with the majority of the list members.
73,
Conard

.-.
. Conard Murray WS4S   Glowbugs listowner .
. 217 Dyer Avenue   ws4s@infoave.net .
.   Cookeville, TN 38501 615-526-4093   .
.   <>< Wise men still seek Him ><>   .
. Member Arizona ScQRPions   QRP-L # 993 .
.-.

Date: Tue, 18 Mar 97 08:47:57 EST
From: jkh@lexis-nexis.com (John Heck)
To: glowbugs@sco.theporch.com
Subject: Re: Count me in
Message-ID: <9703181347.AA14203@beans.lexis-nexis.com>

Folks,
I agree with Eric, although I thought the cost was going to be $20 per year. This is about what a subscription to any magazine would cost and glowbugs is more useful
and fun for me than most mags I get. I could easily give up QST for the glowbugs. Lets face it, what ever the motives of the porch happens to be(and I happen to believe they are honest, and not self serving) we are are conditioned to think that
the internet is a vast playground provided for free by Mother Nature, or something.
It's just *not* so anymore. A few years ago when the 'net was all government and universities, and traffic was very low, it could be free. But, the Internet has been
"discovered" now, and free no more. $20 a year is not bad at all for what you get. If one of us is willing to provide the same service and do the work for free, well great, but I am not sure we will find such a person. Until that time I'll gladly put up my $20 and enjoy the list. In time there will be plenty of other tube orient-
ted folks who will fill out the ranks and it'll be just as good as it always was. If there are folks who just can't afford to pay the fee, I would be glad to chip in for a "scholarship fund" to help those guys out. The BA group has not folded be-
cause of a fee requirement, and this list should not give up the ghost either. Where
do I send my $12? It's worth it.

Regards,
John Heck, KC8ETS
1009 Donson Drive
Dayton, Ohio 45429
(513)865-7036(work)
jkh@lexis-nexis.com

>
> I don't recall what QST cost now a days but it certainly is more than the 24
> bucks proposed for Glowbugs. I don't know about the rest of you but, I find
> the daily posts from Glowbugs every bit as interesting, informative,
> entertaining as I do QST. Count me in!
>
> 73, Eric WD6DGX
>
>
>

Date: Tue, 18 Mar 1997 09:15:11 -0700
From: Walt Turansky <turansky@xroads.com>
To: glowbugs@sco.theporch.com
Subject: 1932 Hartley Performance
Message-ID: <1.5.4.32.19970318161511.0068cfec@mail.xroads.com>

I found the RF ammeter that I had ordered from Fair Radio waiting for me when I returned home from work last night. I hooked it up to the 1932 Grammer Hartley oscillator that I built from the article Bob posted and ran some tests on output vs. coupling. I have a 6336A installed with both sections connected in parallel and am running the plate at 250 to 260 volts. I did the testing with a 50 ohm dummy load.

Coupling (in)	Plate Current (ma)	Power in (W)	Power out (W)
0.5	150	37.8	18.0
0.75	121	30.7	13.8
1.0	100	25.6	9.3
1.25	81	20.9	6.5
1.5	74	19.2	4.1
2.0	60	15.6	1.1

Coupling tighter than 1.25 inches resulted in a signal with a distinct whoop. I've been running this rig with about 75 ma on the plate for about 4.5 watts out. Bob's advice of running the tube at no more than 1/2 to 1/3 of its rated plate dissipation and only coupling tight enough to get an output of 20-30% of the input power is right on.

This pretty well replicates the results that Bob reported in November.
Isn't science wonderful!

The next project is the Barracks Bag VFO for 40M. Has anyone tried this
circuit with an 807? Or, should I use a 6146? I have both in my junque
box.
73 de N7QFN
Walt

Date: Tue, 18 Mar 97 09:45:27 cst
From: mack@mails.imed.com
To: glowbugs@sco.theporch.com
Subject: Re[2]: Vacuum Tube Synchronous Demodulator
Message-ID: <9702188587.AA858707645@mails.imed.com>

Dan:
<snip>
//I will try to put it together 'when time permits', which may not be
//for a while with a toddler in the house :-).
<snip>
        I have 3 kids between 6 and 3. I know what you mean!

<snip>
//John Costas advocates a 'phasing' approach to synchronous detection.
//It appears to use the technique of minimizing the quadrature
//component as the phase-detection technique. This appears to offer
//the following:

//Advantages:
//o No dependence on the carrier. Completely-carrier-suppressed DSB
// can be used.

//Disadvantages:
//o Not usable with SSB modes, since the quadrature component is
// missing if both sidebands are not present.

//o Requires broadband audio phase-shift network to implement
// sideband interference rejection. This is more difficult to realize
// in 'hi-fidelity' applications, requiring unreasonable matching of
// component tolerances.

//o Even though the opposite sideband can be rejected with the
// audio phasing network, the signal from the opposite sideband still
// influences AGC action

//o The quadrature phase detector is sensitive to phase noise.
// This becomes more of a problem with PLL-synthesized receivers,
// since most of these have 'jitter' and subsequently have more phase
// noise in the signal.

<snip>

I think you may misunderstand a subtle part of the phasing approach (Costas method also known as image reject mixer). You *DO NOT* want to throw away that second sideband. The image reject mixer doesn't throw away the opposite sideband. Instead the power of the 2 sidebands is added in phase in the detector. Any energy that is out of phase with the carrier will not add in phase or in frequency. Because noise is uncorrelated, the noise doesn't add in phase. If I remember my communications theory correctly, the S/N ratio for a coherent detector with DSB (with or without carrier) is identical to that for a SSB signal due to this effect. Darn book is at home. The interference rejection is about 3 db if I remember that part correctly also.

There is, in fact, a third method that you did not describe. This is the plain-Jane coherent detector. This is *not* an image reject mixer like the Costas method you described. It looks like the Costas method, but you don't need the phasing network at baseband and you don't need the quadrature channel. It only has 3 db worse interference rejection. Nothing comes for free. You get limited frequency range at baseband with interference rejection or you get Hi-Fi. You *can* get Hi-Fi if you are willing to do a Hilbert transform in a DSP, but that is definately not Hollow state or cheap. I plan to do that some day when the kids don't need so much time.

There is an advantage that many coherent detectors do not take advantage of. If you square a DSB-SC signal, you get a very nice 2Fc carrier that is in perfect sync with the suppressed carrier. Likewise if you multiply a DSB full carrier signal you get even more 2Fc. Now if you get a deep fade on one sideband or the carrier, you still have some 2Fc to work with. My plan is to square the desired signal and square the BFO to get 2 signals at 2Fc. Now I can run a phase detector at 2Fc to keep the BFO in sync with the signal. This does not require a counter to divide down the sync signal from the DSB signal. The mathmeticians in the group will notice that this scheme can have the amibiguity of 180 degrees of phase shift in the BFO. This isn't a problem since this just causes the recovered signal to be 180 degrees shifted from the original. You'll never notice it.

<snip>

//The other technique I'm familiar with is outlined in the 7/93 QST construction
//article "A Synchronous Detector for AM Transmissions" by Jukka Vermasvuori,
//OH2GF. This technique relies on the presence of a carrier, to which the VCO
//is locked directly.

//Advantages:
/o Both sidebands not necessary. Sideband rejection can be
// accomplished with filters.

//o AGC action can be derived exclusively from the signal received.

//o Usable as a product detector by opening loop.

//Disadvantages:
//o In order to maintain lock through deep carrier fades, a long
// time constant for the loop filter is required. This makes the radio
// difficult to tune without opening the loop or resorting to an adaptive
// filtering technique (wide if out of lock; narrow if locked). This may
// explain why most commercial implementations of synchronous dectection use
// the phasing method.

//o Audio quality is now dependent on the characteristics of the
// sideband filter, which is also non-trivial.

//Dan Kerl
//dlkerl@ro.com

An additional advantage of the coherent detector is that it will work with SSB full carrier signal. The long time constant for the PLL is necessary here since a deep fade of the carrier removes all phase information.

There is no need or advantage to a coherent detector for SSB-SC. It doesn't reduce fidelity if the reinserted carrier and the original carrier are not in phase.

The sideband filter for a SSB-full carrier siganl shouldn't be any more trouble than any other IF filter. You are probably only looking at a 5KHz filter for narrow channels and 10 KHz for wide channel Hi-Fi signals. It should be pretty easy to do at 10.7 MHz.

An additional method that you might consider if you aren't a purist about Hollow state, takes the 2Fc signal and runs it through a divide by 2 (like a 74F74 D flip-flop) to generate the injection directly from the incoming signal. You don't *need* a BFO, although it is probably best to have one for those really deep fades.
Ray Mack
WD5IFS
mack@mails.imed.com

Friendswood (Houston), TX

Date: Tue, 18 Mar 1997 10:55:14 -0600
From: "Robert M. Bratcher Jr." <bratcher@worldnet.att.net>
To: ralph.hartwell@emachine.com
Cc: Multiple recipients of list <glowbugs@sco.theporch.com>
Subject: Re: Admistrative, please
Message-ID: <3.0.32.19970318105510.006b3254@postoffice.worldnet.att.net>

At 03:56 AM 3/18/97 +0000, Ralph Hartwell wrote:
>R>> me that as of May 1, the glowbugs list will become a
paid-subscription-only
>
>R>Will the listowner provide me a listing of email addresses for the
>R>members, and if something comes up down the road, maybe I can ask around
>R>for some local input (with the consensus of the individual members)?
>
>
>   Hmm.. Lemme' figure this out... It looks like if I charged $12 a
>person, and if I were to get 30 paying subscribers, then I could cover
>my phone costs and my ISP fees for the year.   That means I could run my
>other two mailing lists for free! <G>
>
> How many folks are on the GB list? It may be possible for me to run
>the list from here, at least for a few months, I just need to know what
>the total subscriber count is so I can see if I can handle the traffic
>without a bit problem. That should tide us over until we can locate a
>better site.
>
>   Ralph W5JGV

It's something like 250 members. I already suggeasted running it myself as
a manual listserv from my Eudora program. As to better site Jeffrey Hermann
is looking for us.

I'll wait & see what happens first. Don't worry, I'm not going away...

Robert M. Bratcher Jr.
E-mail to:
bratcher@worldnet.att.net
Record collector, 8mm, super 8, 16 and 35mm Film collector.
I like old radio's too.
Collins, Hallicrafters, National & Hammurland are my Favorites!

Date: Tue, 18 Mar 1997 14:18:42 -0500 (EST)
From: rdkeys@csemail.cropsci.ncsu.edu
To: turansky@xroads.com
Cc: rdkeys@csemail.cropsci.ncsu.edu (), glowbugs@theporch.com
Subject: Re: 1932 Hartley Performance
Message-ID: <9703181918.AA126688@csemail.cropsci.ncsu.edu>

>
> I found the RF ammeter that I had ordered from Fair Radio waiting for me
> when I returned home from work last night. I hooked it up to the 1932
> Grammer Hartley oscillator that I built from the article Bob posted and ran
> some tests on output vs. coupling. I have a 6336A installed with both
> sections connected in parallel and am running the plate at 250 to 260 volts.
> I did the testing with a 50 ohm dummy load.

Ohhh, a lusty beastie..... soundes goode 'ere....

Coupling (in)	Plate Current (ma)	Power in (W)	Power out (W)
0.5	150	37.8	18.0
0.75	121	30.7	13.8
1.0	100	25.6	9.3
1.25	81	20.9	6.5
1.5	74	19.2	4.1
2.0	60	15.6	1.1

>
> Coupling tighter than 1.25 inches resulted in a signal with a distinct
> whoop. I've been running this rig with about 75 ma on the plate for about
> 4.5 watts out. Bob's advice of running the tube at no more than 1/2 to 1/3
> of its rated plate dissipation and only coupling tight enough to get an
> output of 20-30% of the input power is right on.

Yes, overcoupling is most readily discernable as the dreaded ``whoop ditty
de whoop'' across the band. Although I did not have the fortune to run
them in the real olden days, my OM did, but I just wonder exactly how
stable the early ones were. My guess is that properly run, they were not
all that bad, even by todays standards. Improperly run....wellllllll.......

> This pretty well replicates the results that Bob reported in November.
> Isn't science wonderful!

Yeah, dat is GlowwenBuggeitis par excellance (and close enough science
for our work). It is good to see others getting good results. That makes
my day, as ol' Harry was once wont to say.....

> The next project is the Barracks Bag VFO for 40M. Has anyone tried this
> circuit with an 807? Or, should I use a 6146? I have both in my junque
> box.

My preference would probably be for the 6146 or its 12/14 volt brothers,
from whence I could run a dynamotor, at speed.....(:+}}..... The only
thing I might do differently would be to add to the link coupling a series
coil and capacitor for tuning a low impedance antenna system.

> 73 de N7QFN
> Walt

73/ZUT DE NA4G/Bob UP

Date: Tue, 18 Mar 1997 12:47:20 -0600
From: Dan Kerl <dlkerl@ro.com>
To: glowbugs@sco.theporch.com
Subject: Re: Vacuum Tube Synchronous Demodulator
Message-ID: <332EE338.5549@ro.com>

Chris Trask wrote:
>   There is another approach which is not widely used for recovering
> AM/DSB full carrier by way of Synchronous Demodulation. SInce the signal
> does not have zero-crossings in the carrier, as with DSBSC, the signal,
> after proper filtering, can be passed through a limiter to recover the
> carrier. This recovered carrier is then applied to the LO grid (or the
> deflection plates) of the sheet-beam modulator. IT must be applied either
> in-phase or 180-degrees out of phase for maximim signal recovery.

I think this technique is commonly referred to as 'synchrophase' or
'quasi-synchronous' detection. The aforementioned June 1993 QST synchronous
detector design provides this mode as an option. Quoting from the text:

<begin quote>
Synchronous detection can be mimicked by amplifying and limiting the AM
signal sufficiently so that only carrier remains and substituting this
signal for the BFO at the product detector. This quasi-synchronous
detection acts much like envelope detection and works best when the
received signal does not fall to zero, as can often occur with SSB
(should read 'always occur with SSB' - DK) and with AM during fading.
As the signal fades and the carrier to noise (C/N) ratio decreases,
noise renders the detector switching action inconsistent and detection
quality deteriorates rapidly. Thus, under conditions of low C/N ratio
quasi-synchronous detection exhibits a distinct detection threshold
as does a diode detector. The chief advantage of quasi-synchronous

detection over simple diode rectification is its much lower input level compared to that required by a diode. The detector circuit present in the article includes a quasi-synchronous detector for flexibility and A/B comparison with the synchronous circuit. - OH2GF
<end quote>

I would think that selective partial fades of one of the sidebands or the carrier would also benefit from this topology.

Circuit description:
The circuit uses the ubiquitous NE602 (which combines an oscillator with a Gilbert-cell multiplier) for both the synchronous and quasi-synchronous detectors. Limiting and phase detection is provided by the less-familiar NE604. The circuit relies on the host receiver's IF bandwidth to provide sideband selection. It looks cheap to build. It looks like the loop bandwidth is set around 20Hz.

Dan Kerl
dlkerl@ro.com

Date: Tue, 18 Mar 1997 21:52:29 +0000
From: "Brian Carling" <bry@mail1.mnsinc.com>
To: glowbugs@theporch.com
Subject: Heath Seneca Schematic anyone?
Message-ID: <199703190250.VAA06853@news2.mnsinc.com>

Hi - I have acquired an old Heath Seneca 2m & 6M AM/CW xmtr here.

Does anyone have a schematic or instructions that I could get a photocopy of? I will be glad to pay the usual copying & postage.

Let me know please at: bry@mnsinc.com

72.5 de AF4K
****
*** 73 from Radio AF4K / G3XLQ in Gaithersburg, MD USA *
** E-mail to: bry@mnsinc.com   *
*** See the great ham radio resources at: *
** http://www.mnsinc.com/bry/   *
****

End of GLOWBUGS Digest 479
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